

REMARKS

Claims 1-9 are pending and are rejected under 35 U.S.C. §103(a) over Iizuka et al. (U.S. Patent No. 5,813,576) in view of Maas et al. (U.S. Patent No. 4,925,106). The rejection is respectfully traversed.

Iizuka and Maas, alone or in any permissible combination, fail to teach and would not have rendered obvious the claimed combination of features recited in independent claim 1.

Iizuka and Maas fail to teach and would not have rendered obvious "wherein the meshes have an opening diameter $\phi 2$ which is 2.0 to 3.5 times as large as an opening diameter $\phi 1$ at the inlet opening of the jet ring," as recited in independent claim 1.

The Office Action acknowledges that Iizuka and Maas fail to teach the above feature, but asserts that the claimed range would have been obvious because "where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (See MPEP 2144.05)" (see page 4 of the Office Action).

The Examiner applied a similar argument in the June 5, 2009 Final Rejection, asserting that (1) various parameters play a part in producing fine and homogenous foam and that there is no evidence that all of these other parameters were held constant when determining the claimed diameter ratio that produces the desired foam; and (2) determining whether foam is fine and homogenous is subjective, which would lead different observers to make inconsistent findings (see page 7 of June 5, 2009 Final Rejection).¹ The Examiner then concludes that one of ordinary skill would have optimized the various parameters to produce fine and homogenous foam, thus achieving Applicants' claimed invention (see page 7 of June 5, 2009 Final Rejection).

¹ Applicants note the Examiner has not provided any factual basis for the above arguments other than his scientific opinion.

A particular parameter must first be recognized as a result-effective variable (a variable which achieves a recognized result), before the variable can be considered "optimizable" (see MPEP §2144.05(B), citing *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)). In *In re Antonie*, the claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable. Similar to *In re Antonie*, the prior art does not recognize that the ratio between the opening diameter of the jet ring and the opening diameter of the meshes is a result-effective variable, for example affecting the fineness and homogeneity of the foam. The Office Action has thus failed to establish a *prima facie* case of obviousness, i.e. that the claimed ratio is something one would attempt to optimize.

Indeed, the prior art specifically discloses that desired foam is produced by optimizing the size of the mesh opening, not by controlling the ratio between the opening diameter of the jet ring and the opening diameter of the meshes, as claimed in claim 1. In particular, see JP 2002-159893A (of record), disclosing:

[0035] Connection at the piston 7 for air is preceded at the bubble passage G of the nozzle body 4. By the downstream of the mixing chamber C, the porous body electrode holder 19 stretched to both ends is inserted in the bubble passage G, and a sheet shaped porous body this porous body electrode holder 19. It is for passing the bubble formed in the mixing chamber C, and uniforming. For example, it is what welded and attached to the both ends of the tubed spacer made of a synthetic resin a porous sheet like the gauze which knit thread made of a synthetic resin. It is formed so that the meshes of a net of the porous sheet of the downstream (side near the delivery 43) may become fine rather than the meshes of a net of the porous sheet of the upstream (side near the mixing chamber) (emphasis added).

Based on the facts shown above, one of ordinary skill would not have known to optimize the ratio of the jet ring opening diameter and the meshes' opening diameter as recited in

independent claim 1, but would simply optimize the size of the mesh openings. The claimed ratio is therefore not recognized as a result-effective variable.

Because the Patent Office has not established a prima facie case of obviousness, it is not necessary for Applicants to show criticality, unexpected results, etc. Thus, the June 5, 2009 Final Rejection's commentary on page 7 of the Final rejection is irrelevant.

Further, claims reciting the same the claimed range were determined to be novel and inventive in the corresponding European application.

For at least these reasons, independent claim 1 is patentable over Iizuka and Maas. Claims 2-9 depend from independent claim 1, and are patentable for at least their dependency on independent claim 1, as well as for the additional features they recite. Withdrawal of the rejection is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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